REMARKS

Claims 1-12 are pending. Reconsideration and allowance of the above-referenced application are respectfully requested.

In the Office Action dated September 13, 205, claims 1, 3, 4, and 9-12 were rejected under 35 U.S.C. § 102(b) as being anticipated by Sakai et al. (U.S. Patent No. 4,737,824). Applicant respectfully traverses this rejection.

As explained by Applicant's specification at paragraph [0007], a drawback of known systems that detect whether or not an object is correctly placed on a support structure is that the actual detection (e.g. the measured flow rate or pressure as compared to a predetermined target value) may take too long, which may lead to an unacceptable amount of gas being leaked into the high vacuum space surrounding the object in the lithographic apparatus. Applicant has found that by measuring a change in the flow velocity or pressure of the fluid that is provided to a chamber formed between the object and the support structure as a function of time, it is no longer necessary to wait and see whether or not the expected end value of the flow velocity or pressure of the fluid will be reached. *See* Applicant's specification at [0011].

This finding is reflected in Applicant's claims. For example, claim 1 recites a lithographic apparatus that includes, *inter alia*, a fluid supply structure that includes "a meter arranged to measure a change in at least one of flow velocity of said fluid and pressure of said fluid as a function of time, in order to detect whether or not said object is correctly clamped on said support structure." Sakai et al. does not disclose or suggest all of the features of claim 1.

Instead, Sakai et al. discloses a surface shape controlling device that includes a pressure sensor (5) that detects the pressure in the closed space defined by a pocket (2*b*) and a wafer (1). *See* Sakai et al. at col. 3, lns. 35-36. The pressure sensor (5) of Sakai et al. is part of a feedback system for maintaining the pocket (2*b*) at constant pressure once the exposure operation begins. *See* Sakai et al. at col. 4, lns. 33-38. The surface shape controlling device also includes a command circuit (6) that is connected to a computing circuit (12). *See* Sakai et al. at col. 3, lns. 38-39. The command circuit (6) provides an instructional signal to the computing circuit (12) that designates or sets the desired surface shape of the wafer (1). *See* Sakai et al. at col. 3, lns. 38-40. A flatness measuring device (10) detects the flatness or nonflatness of the surface of the wafer (1), and provides an output to the computing circuit

(12). *See* Sakai et al. at col. 3, lns. 41-51. The pressure sensor (5) also provides an output signal to the computing circuit (12). *See* Sakai et al. at col. 3, lns. 37-38. The computing circuit (12) provides a signal to a drive unit (7) (*see* Sakai et al. at col. 3, lns. 58-59) that includes a servo valve that is adapted to supply a controlled vacuum or air pressure to the pocket (2*b*). Sakai et al. at col. 3, lns. 20-33. The pressure sensor (5) of Sakai et al. merely measures the pressure of the pocket (2*b*) at a given moment in time and does not "measure a change in ... pressure of said fluid as a function of time, in order to detect whether or not said object is correctly clamped on said support structure" as recited by claim 1.

Accordingly, Applicant respectfully submits that claim 1 and claims 2-8 that depend from claim 1 are patentable over Sakai et al., and respectfully requests that the rejection to claims 1, 3, and 4 be withdrawn.

Claim 9 recites a method to detect correct clamping of an object on a support structure that includes, *inter alia*, "measuring a change in at least one of flow velocity of the fluid and pressure of the fluid as a function of time." It is the Examiner's position that claim 9 is an inherent teaching of Sakai et al. (*See* Office Action at p. 3.) However, as discussed above, Sakai et al. does not disclose or suggest a meter that is arranged to measure a change in at least one of flow velocity of the fluid and pressure of the fluid as a function of time, in order to detect whether or not the object is correctly clamped on the support structure. As such, the method of claim 9 cannot be an inherent teaching of Sakai et al. Moreover, Sakai et al. does not otherwise disclose or suggest a method to detect correct clamping of an object on a support structure that includes, *inter alia*, "measuring a change in at least one of flow velocity of the fluid and pressure of the fluid as a function of time," as recited by claim 9.

Accordingly, Applicant respectfully submits that claim 9 is patentable over Sakai et al., and respectfully requests that the rejection to claim 9 be withdrawn.

Claim 10 recites a computer system to detect correct clamping of an object on a support structure that includes, *inter alia*, "means for measuring a change in at least one of flow velocity of the fluid and pressure of the fluid as a function of time." It is the Examiner's position that claim 10 is an inherent teaching of Sakai et al. (*See* Office Action at p. 3.) Sakai et al. is discussed above. Sakai et al. does not disclose (either inherently or expressly) or suggest a computer system that includes all of the features of claim 10.

Accordingly, Applicant respectfully submits that claim 10 is patentable over Sakai et al., and respectfully requests that the rejection to claim 10 be withdrawn.

Claim 11 recites a computer-readable medium encoded with a computer program to detect correct clamping of an object on a support structure that includes, *inter alia*, "measuring a change in at least one of flow velocity of the fluid and pressure of the fluid as a function of time." It is the Examiner's position that claim 11 is an inherent teaching of Sakai et al. (*See* Office Action at p. 3.) Sakai et al. is discussed above. Sakai et al. does not disclose (either inherently or expressly) or suggest a computer-readable medium that includes all of the features of claim 11.

Accordingly, Applicant respectfully submits that claim 11 is patentable over Sakai et al., and respectfully requests that the rejection to claim 11 be withdrawn.

Claim 12 recites a support structure for use in a lithographic apparatus that includes, *inter alia*, a fluid supply structure that includes "a meter arranged to measure a change in at least one of flow velocity of said fluid and pressure of said fluid as a function of time, in order to detect whether or not the object is correctly clamped on said support structure." Sakai et al. is discussed above. The pressure sensor (5) of Sakai et al. is not "a meter arranged to measure a change in at least one of flow velocity of said fluid and pressure of said fluid as a function of time, in order to detect whether or not said object is correctly clamped on said support structure" as recited by claim 12.

Accordingly, Applicant respectfully submits that claim 12 is patentable over Sakai et al., and respectfully requests that the rejection to claim 12 be withdrawn.

In the Office Action, claims 6-8 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sakai et al. Applicant respectfully traverses this rejection.

Claim 6 depends from claim 1, and claims 7 and 8 depend from claim 6. As discussed above, claim 1 is patentable over Sakai et al., because Sakai et al. does not disclose or suggest a lithographic apparatus that includes, *inter alia*, a fluid supply structure that includes "a meter arranged to measure a change in at least one of flow velocity of said fluid and pressure of said fluid as a function of time, in order to detect whether or not said object is correctly clamped on said support structure." Moreover, claim 6 adds the features of "said fluid supply structure is adapted to increase said pressure in said compartment from a first level to a second level during a predetermined period of time and subsequently decrease said pressure from said second level to a third level." Sakai et al. is discussed above. Sakai et al. expressly discloses that any changes to the pressure of the pocket (2*b*) are based on a comparison of the output of the flatness detecting device (10) with the output of the command circuit (6) and that the change may be an increase or a decrease. *See* Sakai et al. at

col. 4, lns. 8-24. Thus, it would not have been obvious to modify Sakai et al. to "increase said pressure in said compartment from a first level to a second level during a predetermined period of time and subsequently decrease said pressure from said second level to a third level," as recited by claim 6, because depending on the outputs of the flatness detecting device (10) and the command circuit (6) of Sakai et al., the pressure in the pocket (2*b*) may only have to be decreased and not increased.

Moreover, in regards to claim 7, Sakai et al. does not disclose or suggest the pressure ranges used in the pocket (2*b*) or any time scale at which measurements and adjustments are taken. In addition, in regards to claim 8, Sakai et al. does not indicate that the changes in pressure occur at a predetermined period of time.

Accordingly, Applicant respectfully submits that claims 6-8 are patentable over Sakai et al. for these additional reasons, and respectfully requests that the rejection to claims 6-8 be withdrawn.

In the Office Action, claims 2 and 5 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sakai et al. in view of Amano (U.S. Patent No. 6,401,359). Applicant respectfully traverses this rejection.

Claims 2 and 5 depend from claim 1. Claim 1 is discussed above. Claim 2 adds the feature of the meter being "a flow velocity meter connected to a control unit arranged to receive a value representative of said flow velocity of said fluid and arranged to determine a change in said flow velocity of said fluid as a function of time and to compare said change with a predetermined value of said change." Claim 5 adds the feature of the fluid being "a gas comprising argon."

Sakai et al. is discussed above. As discussed at paragraph [0006] of Applicant's specification, Amano discloses a system that is capable of detecting leakage of a heat-transfer gas supplied to a space between a wafer and a mounting stand supporting the wafer in order to determine whether or not the wafer is correctly placed on the mounting stand. The system disclosed by Amano uses a flowmeter to perform the detection. The flowmeter measures the flowrate of the gas and compares it by a comparator against a threshold value. The flowmeter of Amano does not determine "a change in said flow velocity of said fluid as a function of time and compare said change with a predetermined value of said change," as recited by claim 2.

As discussed above and explained by Applicant's specification at paragraph [0007], a drawback of known systems (e.g. the system disclosed by Amano) that detect whether or not

an object is correctly placed on a support structure is that the actual detection (e.g. the measured flow rate or pressure as compared to a predetermined target value) may take too long, which may lead to an unacceptable amount of gas being leaked into the high vacuum space surrounding the object in the lithographic apparatus.

Amano simply doesn't disclose or suggest all of the features of claim 1 or claim 2. Moreover, there would be no motivation to replace the pressure sensor (5) of Sakai et al. with the flowmeter of Amano, because there would be no reason to measure the flow velocity of a fluid in the pocket (2*b*) of Sakai et al., as Sakai et al. is not concerned with leakage, but is instead directed to controlling the surface shape of the wafer (1).

As conceded by the Examiner, Sakai et al. and Amano do not disclose a fluid that is a gas comprising argon. Instead, the Examiner asserts that "[i]t would have been obvious to a skilled artisan to supply argon to the compartment of Sakai for at least the purpose of increasing of the light transmittance or the generation of ozone in the exposure apparatus." Applicant respectfully submits that the claimed compartment to which the argon is supplied is defined by a support structure adapted to clamp an object thereon and the object clamped on the support structure. There is no need to increase the light transmittance or the generation of ozone in the compartment.

Moreover, as discussed above and at paragraph [0007] of Applicant's specification, a drawback of known systems that detect whether or not an object is correctly placed on a support structure is that the actual detection (e.g. the measured flow rate or pressure as compared to a predetermined target value) may take too long, which may lead to an unacceptable amount of gas being leaked into the high vacuum space surrounding the object in the lithographic apparatus. Thus, accordingly to Applicant's disclosure, the gas in the compartment should not be allowed to enter the rest of the apparatus. There is simply no motivation, absent Applicant's disclosure, to provide argon to the claimed compartment.

Accordingly, Applicant respectfully submits that claim 5 is patentable over Sakai et al. in view of Amano, and respectfully requests that the rejection to claim 5 be withdrawn.

All rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited. If any point remains at issue which the Examiner feels may best be resolved through a personal or telephone interview, please contact the undersigned at the telephone number below.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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